

## REMARKS

No amendment has been made in response to the outstanding Non-final Office Action dated April 24, 2009. The Examiner's reconsideration is respectfully requested in view of the following remarks.

Claims 1, 3-5, 7 and 8 are pending in the present application.

### Claim Rejections Under 35 U.S.C. §103

#### Rejection of Claims 1 and 5

Claims 1 and 5 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Matsushima (U.S. Patent Application Publication No. 2003/0016299; hereinafter, "Matsushima") in view of Araki (U.S. Patent No. 5,278,659; hereinafter, "Araki") and in further view of Pettinelli (U.S. Patent No. 6,254,003; hereinafter, "Pettinelli").

Applicant notes that the cited reference "Araki" should be corrected into "Okino" (U.S. Patent No. 5,371,539), in view of the detailed reasons for rejection in the Office Action.

In order for an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996). See MPEP 2143.

Establishing a prima facie case of obviousness requires that all elements of the invention be disclosed in the prior art. *In re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970). Further, even assuming that all elements of an invention are disclosed in the prior art, an Examiner cannot establish obviousness by locating references that describe various aspects of a patent applicant's

invention without also providing evidence of the motivating force which would have impelled one skilled in the art to do what the patent applicant has done. *Ex parte Levengood*, 28 U.S.P.Q. 1300 (Bd. Pat. App. Int. 1993). The references, when viewed by themselves and not in retrospect, must suggest the invention. *In re Skill*, 187 U.S.P.Q. 481 (C.C.P.A. 1975).

Claims 1 and 5 are independent claims.

Claims 1 and 5 include, *inter alia*, the following limitation:

a first A/D converter for receiving the output signals of the variable gain amplifier and converting the received output signals into digital signals,  
a second A/D converter for directly receiving the output signals of the image sensor and converting the received output signals into digital signals,  
wherein the shutter control signal is generated by using the output signals of the second A/D converter, and  
wherein the movement value, the gain control signal and the offset control signal are generated by using the output signals of the first A/D converter  
(Emphasis added)

As above, the claimed invention includes *a second A/D converter for directly receiving the output signals of the image sensor and converting the receive output signals into digital signals, and the shutter control signal being generated by using the output signals of the second A/D converter.*

More specifically, the claimed invention includes two A/D converters (first and second A/D converters) to maximize dispersion of a signal input to the image data processor 24. The claimed first and second A/D converters have different purposes. That is, the first converter 23 calculates a movement value and generates a gain control signal, and the second converter 25 generates a shutter control signal SSC. The shutter control signal is generated by using the output signals of the second A/D converter.

In the outstanding Office Action, the Examiner has alleged that Matsushima in view of Okino do not teach the claimed second A/D converter or the shutter control signal being generated by the output signals of the second A/D converter, but Pettinelli teaches these claimed features. The Examiner has further stated that Pettinelli teaches the claimed second A/D

converter (lines 38-59 on column 8 and Fig. 1 thereof), and the claimed shutter control signal being generated by the second A/D converter (lines 17-29 and 51-63 on column 6 thereof).

Applicant respectfully disagrees with the Examiner's characterization of the Pettinelli reference.

Lines 38-39 on column 8 of Pettinelli reads as follows:

*As explained earlier, the magnitude of the illumination signal of the present invention may also be derived directly from output signal OS of image sensor 30. A first way of accomplishing this is shown in FIG. 1. In FIG. 1, determining the magnitude of the illumination signal is accomplished by connecting the output of sensor 30 directly to an I/O port of microprocessor 60, or to an A/D converter which is connected to such a port as, for example, by a conductor 95 shown in dotted lines in FIG. 1. With this embodiment, the analog output signal of sensor 30 is converted to digital form by the external A/D converter or by an A/D converter that is built into processor 60. Once converted to digital form, the illumination signal may be processed by means of a digital window detecting subroutine to produce window state signals, such as those shown in Table I, in a manner that will be apparent to those skilled in the art. Depending upon the application, and the speed and power of microprocessor 60, this A/D conversion may be performed on each pixel of the image sensor output, each Nih pixel of the image sensor output, or selected centrally located representative pixels thereof. It will be understood that all such sampling methods are within the contemplation of the present invention (Emphasis added)*

As disclosed in line 38-59 on column 8 thereof, Pettinelli uses an A/D converter as a means for determining a window state, **not** for generating a shutter control signal SSC. In contrast, the claimed second A/D converter is used to generate a shutter control signal SSC. Thus, Applicant respectfully submits that Pettinelli fails to teach or suggest the claimed second A/D converter, as recited in Claims 1 and 5.

Lines 17-29 and 51-63 on column 6 of Pettinelli reads as follows:

*The timing and control signals necessary to operate image sensor 30 are supplied thereto, in part, by a timing logic network 55 and, in part, by a programmed control device 60, which preferably comprises a microprocessor, such as a Motorola HC05, having on-chip program and data memories 62 and 64, respectively. The timing of timing logic network 55 and microprocessor 60 are controlled by a master clock 70 having an operating frequency that is, in turn, controlled by a suitable crystal 72. The manner in which image sensor 30 is controlled in accordance with these timing and control signals will be described more fully later in connection with the block diagram of FIG. 3, the timing diagram of FIG. 3A and the flow charts of FIGS. 4A, 4B, 5A and 5B.*

*Referring to FIG. 3, there is shown a simplified block diagram of one image sensor of a type that may be used in practicing the present invention, namely: a model TCD 1205D image sensor manufactured by Toshiba Corp. This image sensor includes a 1D photosensitive array 32 that includes 2048 pixels, a clear gate 34 which is controlled by an integration clear signal ICG, a shift gate 36 which is controlled by a shift signal SH, a CCD analog shift register 38 out of which data may be serially shifted by clock signals  $\phi 1$  and  $\phi 2$ , and signal output buffer 39 which is controlled by a reset signal RS. Not shown, for the sake of clarity, is the internally bifurcated structure of gates 34 and 36 and register 38. (Emphasis added)*

The Examiner has stated that the ICG signal in Pettinelli is used to clear the image sensor and functions as an electrical shutter. However, Applicant submits that there is no teaching or suggestion in Pettinelli as to the claimed **shutter control signal** being generated **by the second A/D converter**, as recited in Claims 1 and 5.

Further, Matsushima, Okino and Pettinelli teaches only one A/D converter. Thus, it is respectfully submitted that, since the cited references do not need to have two A/D converters, there is no motivation to combine these references to reach the claimed two A/D converters configuration. Also, the proposed combination can not reach the claimed **two A/D converters structure and operations**, i.e., the claimed *second A/D converter for directly receiving the output signals of the image sensor and converting the receive output signals into digital signals, the shutter control signal being generated by using the output signals of the second A/D converter, and the claimed first A/D converter generating the movement value and the gain control signal*, as recited in Claims 1 and 5.

Thus, Applicant submits that Matsushima, Okino and Pettinelli, either alone or in combination, do not teach or suggest *at least* the claimed *second A/D converter for directly receiving the output signals of the image sensor and converting the receive output signals into digital signals, and the shutter control signal being generated by using the output signals of the second A/D converter*, as recited in Claims 1 and 5.

It is therefore submitted that Matsushima, Okino and Pettinelli, either alone or in combination, fail to teach or suggest the subject matter claimed in the amended Claims 1 and 5, and thus *no suggestion or motivation* exists in the cited references. Accordingly, *prime facie*

obviousness does not exist regarding the subject matter claimed in Claims 1 and 5 with respect to the cited references. Applicant respectfully submits that Claims 1 and 5 are now allowable.

Applicant respectfully requests the Examiner to review these submissions and withdraw the rejection of Claims 1 and 5 under 35 U.S.C. §103(a).

#### Rejection of Claims 3 and 7

Claims 3 and 7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Matsushima in view of Araki (*sic*, Okino), in further view of Pettinelli, and further in view of Shiga (U.S. Patent Application Publication No. 2005/0062874).

Claims 3 and 7 are directly dependent from Claims 1 and 5 respectively.

As discussed above, Claims 1 and 5 include *a second A/D converter for directly receiving the output signals of the image sensor and converting the receive output signals into digital signals, and the shutter control signal being generated by using the output signals of the second A/D converter*. However, Matsushima, Okino and Pettinelli, either alone or in combination, do not teach or suggest these claimed features.

Shiga is directed to a digital camera. However, Shiga, either alone or in combinations with Matsushima, Okino and Pettinelli, fails to teach or suggest at least the claimed *second A/D converter for directly receiving the output signals of the image sensor and converting the receive output signals into digital signals, and the shutter control signal being generated by using the output signals of the second A/D converter*, as recited in Claims 1 and 5.

It is therefore submitted that Matsushima, Okino, Pettinelli and Shiga, either alone or in combination, fail to teach or suggest the subject matter claimed in the amended Claims 1 and 5, and thus *no suggestion or motivation* exists in the cited references. Accordingly, *prime facie* obviousness does not exist regarding the subject matter claimed in Claims 1 and 5 with respect to

the cited references. Applicant respectfully submits that Claims 1 and 5 are now allowable over Matsushima, Okino, Pettinelli and Shiga.

Claims 3 and 7 are also believed to be allowable, by means of their direct dependency from Claim 1 and 5 respectively.

Applicant respectfully requests the Examiner to review these submissions and withdraw the rejection of Claims 3 and 7 under 35 U.S.C. §103(a).

#### Rejection of Claims 4 and 8

Claims 4 and 8 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Matsushima in view of Araki (*sic*, Okino), in further view of Pettinelli, and further in view of Nagata (U.S. Patent No. 6,366,228).

Claims 4 and 8 are directly dependent from Claims 1 and 5 respectively.

As discussed above, Claims 1 and 5 include *a second A/D converter for directly receiving the output signals of the image sensor and converting the receive output signals into digital signals, and the shutter control signal being generated by using the output signals of the second A/D converter*. However, Matsushima, Okino and Pettinelli, either alone or in combination, do not teach or suggest these claimed features.

Nagata is directed to a selecting circuit to be used for selecting CMOS inverters or the like. However, Nagata, either alone or in combinations with Matsushima, Okino and Pettinelli, fails to teach or suggest at least the claimed *second A/D converter for directly receiving the output signals of the image sensor and converting the receive output signals into digital signals, and the shutter control signal being generated by using the output signals of the second A/D converter*, as recited in Claims 1 and 5.

It is therefore submitted that Matsushima, Okino, Pettinelli and Nagata, either alone or in combination, fail to teach or suggest the subject matter claimed in the amended Claims 1 and 5,

and thus *no suggestion or motivation* exists in the cited references. Accordingly, *prime facie* obviousness does not exist regarding the subject matter claimed in Claims 1 and 5 with respect to the cited references. Applicant respectfully submits that Claims 1 and 5 are now allowable over Matsushima, Okino, Pettinelli and Nagata.

Claims 4 and 8 are also believed to be allowable, by means of their direct dependency from Claim 1 and 5 respectively.

Applicant respectfully requests the Examiner to review these submissions and withdraw the rejection of Claims 4 and 8 under 35 U.S.C. §103(a).

**Conclusion**

In view of the foregoing, it is respectfully submitted that the instant application is in condition for allowance. Reconsideration and subsequent allowance of this application are courteously requested.

If there are any charges due with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Applicant's attorneys.

The Examiner is invited to contact Applicant's Attorneys at the below-listed telephone number with any questions or comments regarding this Response or otherwise concerning the present application.

Respectfully submitted,

CANTOR COLBURN, LLP

By: /Jaegyoo Jang/  
Jaegyoo Jang  
Limited Recognition No.: L0469

Date: July 23, 2009  
Cantor Colburn LLP  
1800 Diagonal Road  
Suite 510  
Alexandria, VA 22314  
Telephone: (703) 236-4500  
Facsimile: (703) 236-4501